IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Paul ADAMS *et al.*	Group Art Unit: 1746
Application No.: 10/679,756	Examiner: Robert W. HODGE
Filed: October 6, 2003	Attorney Docket No.: BIC-018

For: FUEL CARTRIDGES FOR FUEL CELLS AND METHODS FOR MAKING SAME

RESPONSE TO ELECTION OF SPECIES REQUIREMENT

Commissioner of Patents
PO Box 1450
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Sir:

In response to the Election of Species Requirement mailed on June 29, 2007 and August 24, 2007, Applicants elect Species I including claims directed to Figure 1, *i.e.* claims 1-17 and 75-116. This election is with traverse.

In the paper mailed on August 24, 2007, the Examiner stated that Applicants' initial election mailed on July 13, 2007 was not fully responsive. The Examiner stated that many of the new claims 75-116 do not read on FIG. 1 because the claims either include elements that are not depicted in FIG. 1 (*e.g.*, a wicking material as recited in claim 79, or porous members such as a filler or foam), or the claims exclude elements that are specifically depicted in FIG. 1 (*e.g.*, claims 82-90 fail to recite a pump, and claims 92, 94-100, 103-112, 115 and 116 fail to recite either a pump or a membrane).

Applicants respectfully disagree with the Examiner. Under 37 C.F.R. § 1.146 and M.P.E.P. § 806.04, an election of species requirement is appropriate only if the claims embrace more than one patentably distinct species. New claims 75-116 and amended claims 1-17 all read on the species of Figure 1 and no other species or Figures. Furthermore, FIG. 1 does not exist alone but it is described in detail in the accompanying specification as required by 35 U.S.C. § 112. Here FIG. 1 is described from page 7, line 12 to page 9, line 22 (hereinafter "the Figure 1 Text"). When one reviews FIG. 1 in conjunction with the Figure 1 Text, it becomes clear that the unique technical feature is that fuel is transported from a first fuel compartment **14** to a third reaction chamber **22**, where the fuel reacts to form reactants comprising hydrogen gas and liquid reactant, and thereafter both the hydrogen gas and liquid reactant are transported to the second reactant compartment **16**, as shown below in FIG. 1. No other Figures in this application shows this technical feature.

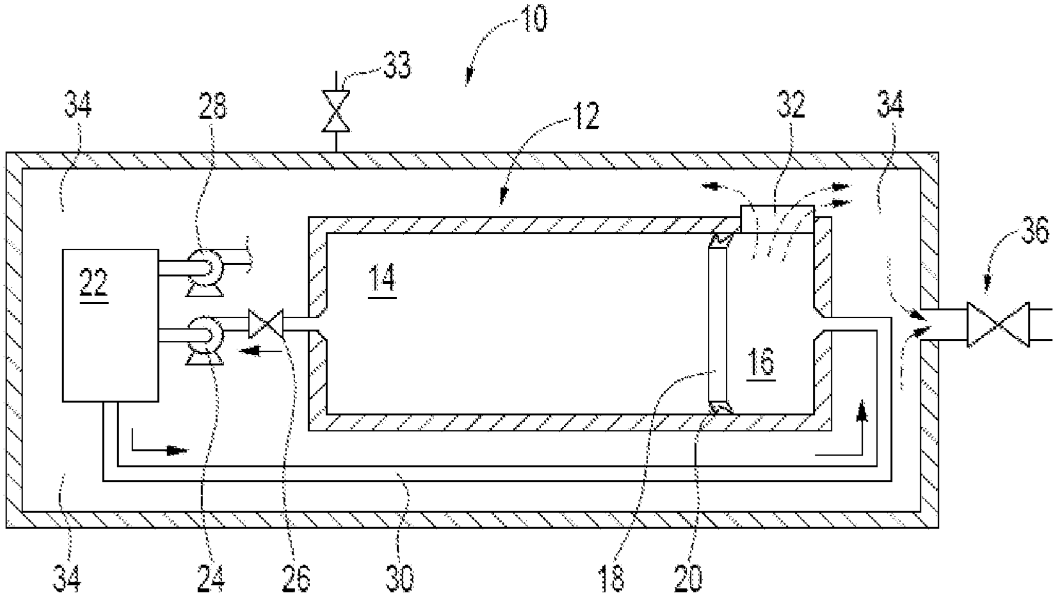

FIG. 1

Within pending claims 1-17 and 75-116, claims 1, 82, 92, 100 and 112 are the independent claims. All of these independent claims recite this technical feature in the second paragraph of each claim, *inter alia*. Hence, all the pending claims including independent claims 1, 82, 92, 100 and 112 and their dependent claims are limited to FIG. 1.

More specifically, the Examiner stated that claim 79 does not read on FIG. 1 because it requires a "wicking material" instead of a pump as indicated by reference numeral **24** in FIG. 1. However, within the Figure 1 Text, page 8, lines 1-4 of the originally filed specification states, "Fuel can be transported by pump **24**, even when compartment **14** is pressurized, because a pump can regulate when the flow of fuel should start or stop by turning on or off and the pump can meter or control the rate of flow. Alternatively, the fuel can be transported through a wicking or capillary medium." (emphasis added). Similarly, within the Figure 1 Text, page 9, lines 3-4 of the originally filed specification states, "In accordance with one aspect of the invention, fuel is transported from fuel compartment **14** to reaction chamber **22** by capillary or wicking material instead of by pump **24**." (emphasis added). The above passages indicate that wicking material is an alternate to the pump **24** depicted in FIG. 1. Thus, claim 79 still reads on FIG. 1 even though it does not recite a pump, since the Figure 1 Text clearly supports it.

Because claims 82-90 also do not require a pump to be present, the Examiner suggested that they too do not read on FIG. 1 but read on at least FIG. 3. As explained above, the absence of a pump does prevent a claim from reading on FIG. 1 because either a pump *or* wicking material may be used in the fuel cartridge depicted in FIG. 1. Claim 82 recites that fuel is transported from the first fuel compartment **14** to the third reaction chamber **22** and *then both the hydrogen gas and liquid reactant are transported to the second reactant compartment **16***, inter alia. This claimed structure is only shown in FIG. 1. Furthermore, the gas permeable, liquid impermeable membrane limitation in claim 82 is illustrated as reference numeral **32** in FIG. 1. Hence, claim 82 and its dependent claims necessarily read on FIG. 1. Furthermore, claims 82-90 cannot read on FIG. 3 because it depicts a structure where the fuel reforming process, if any, occurs outside of the fuel cartridge. See page 10, lines 12-13 of the originally filed specification. By contrast, claims 82-90 are directed to a fuel cartridge designed to accommodate an internal fuel reforming process given that independent claim 82 recites "a third reaction chamber [**22**], where the fuel reacts to form hydrogen gas and liquid reactant." Thus, independent claim 82 and its dependent claims 83-90 all read on and are supported by FIG. 1, but not FIG. 3.

The Examiner also states, "Claims 92, 94-100, 103-112, 115 and 116 do not require a pump or a membrane and therefore read on at least figure 4." As discussed above, the absence of a pump does not prevent a claim from reading on FIG. 1 because either a pump *or* wicking material may be used in the fuel cartridge **10** depicted in FIG. 1. Like independent claim 82, independent claim 92 also recites that fuel is transported from the first fuel compartment **14** to the third reaction chamber **22** and *then both the hydrogen gas and liquid reactant are transported to the second reactant compartment **16***, inter alia. This claimed structure is only illustrated in FIG. 1. Furthermore, claim 92 recites a pressure differential device to allow hydrogen to pass through. This pressure differential device can be a gas permeable, liquid impermeable membrane shown as element **32** in FIG. 1 (as recited in claim 93) *or*, alternatively, a poppet valve, a porous member, a filler or a foam (as recited in claim 94). Support for the pressure differential device and suitable embodiments can be found on page 8, line 23 to page 9, line 2, which is within the Figure 1 Text. Hence the absence of a membrane also does not prevent a claim from reading on FIG. 1 because hydrogen can move from second reactant compartment **16** across either a membrane *or* porous member (*e.g.*, a filler or foam) to internal spacing **34**. Thus, independent claim 92 and its dependent claims 93-99 all read on and are supported by FIG. 1 and the Figure 1 Text.

Like independent claims 82 and 92, independent claim 100 also recites that fuel is transported from the first fuel compartment **14** to the third reaction chamber **22** and *then both the hydrogen gas and liquid reactant are transported to the second reactant compartment **16***, inter alia. This claimed structure is only illustrated in FIG. 1. Independent claim 100 also recites that a wicking material is used to transport fuel from the first fuel compartment **14** to the third reaction chamber **22**. As discussed above, the absence of a pump does not prevent a claim from reading on FIG. 1 because either a pump *or* wicking material may be used in the fuel cartridge **10** depicted in FIG. 1. Independent claim 100 also recites a shut-off valve that allows hydrogen gas to pass from the second reactant compartment **16** to the fuel cell. This shut-off valve is depicted by reference numeral **36** in FIG. 1 and described in the specification at page 8, lines 16-20 and page 9, lines 5-8, which is within the Figure 1 Text. Thus, claim 100 and its dependent claims 102-111 all read on and are supported by FIG. 1 and the Figure 1 Text.

Like independent claims 82, 92 and 100, independent claim 112 also recites that fuel is transported from the first fuel compartment **14** to the third reaction chamber **22** and *then both the hydrogen gas and liquid reactant are transported to the second reactant compartment **16***, inter alia. This claimed structure is only illustrated in FIG. 1. Independent claim 112 does not specifically recite a pump, but as discussed above, the absence of a pump does not prevent a claim from reading on FIG. 1 because either a pump (as recited in dependent claim 113) *or* wicking material (as recited in dependent claim 114) may be used in the fuel cartridge **10** depicted in FIG. 1. Independent claim 112 also recites a single valve positioned between the first fuel compartment **14** and the third reaction chamber **22**. This single valve is depicted by reference numeral **26** in FIG. 1 and described in the specification at page 8, lines 7-9, which is within the FIG. 1 Text. Thus, claim 112 and its dependent claims 113-116 all read on and are supported by FIG. 1 and the identified text.

Contrary to the Examiner's assertion, claims 92, 94-100, 103-112, 115 and 116 cannot read on FIG. 4 because like FIG. 3 it too depicts a structure where the fuel reforming process, if any, occurs outside of the fuel cartridge, and the claims at issue all require the fuel reforming process within the fuel cartridge.

Finally, the Examiner notes "that there are various claims referring to porous members such as a filler or a foam used for storage of the fuel, which also is not present in figure 1." As explained above, a porous member (*e.g.*, a filler or foam) can be used as a pressure differential device illustrated as element **32** in FIG. 1. Thus, the claims reciting porous members (*e.g.*, claims 77, 84 and 94) read on FIG. 1.

Hence, all of the pending claims read on FIG. 1 and are supported by the FIG. 1 Text of the specification (p. 7, line 12 to p. 9, line 22) that describes FIG. 1.

In light of the preceding, Applicants believe that the presently pending claims are in condition for allowance, early notice of which would be greatly appreciated. The Examiner is invited to telephone the undersigned attorney of record if he believes that such a call would materially advance the prosecution and eventual allowance of the present application. .

Applicants believe that no fees are due in connection with the submission of this Response. However, if any required fee is due, the Commissioner may charge appropriate fees to H.T. Than Law Group, Deposit Account No. 50-1980, and if any extension of time is required, it is hereby petitioned for under 37 C.F.R. § 1.136.

Respectfully submitted,

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